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THE PROGRESS OF CALIFORNIA'S PUBLICLY OWNED UTILITIES IN IMPLEMENTING RENEWABLES PORTFOLIO STANDARDS

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Abstract

This report describes the progress of California's local publicly owned electric utilities toward implementing the state's Renewables Portfolio Standards, summarizing available data on the local publicly owned electric utilities':

- Utility-specific Renewables Portfolio Standard targets, timelines, and resource eligibility rules.
- Renewable energy deliveries in 2003 and 2006, based on each local publicly owned electric utility's specific renewable energy purchases and self-established Renewables Portfolio Standard resource eligibility rules.
- Renewable energy deliveries in 2003 and 2006, based on each local publicly owned electric utility's specific renewable energy purchases and the Energy Commission's resource eligibility rules as applied to the state's other electricity suppliers under the Renewables Portfolio Standard.
- Renewable energy solicitations issued since 2002.
- Renewable energy contracts signed and utility-owned projects announced since 2002.

The report also compares the local publicly owned electric utilities' renewable energy targets, deliveries, and procurement efforts to that of the state's three major investor-owned utilities.

The data presented in this report will be periodically updated and made publicly available in a spreadsheet database. Data on publicly owned utilities' 2007 renewable energy deliveries will be incorporated into the next update to the database.

Keywords: Publicly owned electric utilities, Renewables Portfolio Standard, investor-owned utilities, renewable energy

Executive Summary

California has 46 local publicly owned electric utilities, which, as defined by Public Utilities Code Section 9604 (d), includes the state's municipal utilities, irrigation districts, and joint powers authorities. Together, California's local publicly owned electric utilities serve roughly 25 percent of the state's retail electricity load. California's Renewables Portfolio Standard law requires certain retail sellers of electricity to increase the amount of renewable energy they procure each year by at least 1 percent until 20 percent of their retail sales are served with renewable energy by 2010, but specifically excludes local publicly owned electric utilities from the definition of "retail seller." Instead, local publicly owned electric utilities are required to implement a Renewables Portfolio Standard, but are given flexibility in developing utility-specific targets, timelines, and resource eligibility rules.

Local publicly owned electric utilities are required to file several types of formal reports with the Energy Commission that contain information needed to track their efforts in establishing and implementing Renewables Portfolio Standard policies. This report compiles data related to local publicly owned electric utilities' Renewables Portfolio Standard-related activities from a variety of sources, including but not limited to local publicly owned electric utilities' formal data submittals. Specifically, the report summarizes available data on:

- Local publicly owned electric utilities-specific Renewables Portfolio Standard targets, timelines, and resource eligibility rules.
- Renewable energy deliveries in 2003 and 2006, based on each local publicly owned electric utility's specific renewable energy purchases and self-established Renewables Portfolio Standard resource eligibility rules ("local publicly owned electric utility-qualifying deliveries").
- Renewable energy deliveries in 2003 and 2006, based on each local publicly owned electric utility's specific renewable energy purchases and the Energy Commission's resource eligibility rules as applied to the state's other electricity suppliers under the Renewables Portfolio Standard ("Energy Commission-eligible deliveries").
- Renewable energy solicitations issued since 2002.
- Renewable energy contracts signed, and utility-owned projects announced, since 2002.

To provide some context for these data, the report also compares the local publicly owned electric utilities' renewable energy targets, deliveries, and procurement efforts to that of the state's three major investor-owned utilities.

The vast majority of large and medium-sized local publicly owned electric utilities, and many of the smaller local publicly owned electric utilities, have adopted formal Renewables Portfolio Standard policies comparable to the original 20-percent-by-2017 Renewables Portfolio Standard for the state's investor-owned utilities, energy service providers, and community choice aggregators. Further, many local publicly owned electric utilities have accelerated their target

date up to 2010, as currently required for investor owned utilities, energy service providers, and community choice aggregators, and a handful of local publicly owned electric utilities have adopted even higher targets, consistent with the state's 33-percent-by-2020 policy goal. Altogether, the local publicly owned electric utilities' collective Renewables Portfolio Standard targets are equivalent to approximately 12.3 percent of local publicly owned electric utility retail sales in 2010 and 26.0 percent of retail sales in 2020.

To meet their varying Renewables Portfolio Standard targets, California's local publicly owned electric utilities will have to increase their renewable energy deliveries by an amount equal to approximately 21.1 percent of their combined retail sales, relative to renewable deliveries in 2003, when the state's Renewables Portfolio Standard began. This is a considerably larger incremental increase, proportionally, than the 6.0 percent of retail sales increase required by the state's investor-owned utilities to meet their 20 percent target, and it is roughly in line with the incremental increase that investor-owned utilities would have to achieve to reach a 33 percent renewable energy target.

As a whole, California's local publicly owned electric utilities have demonstrated measurable progress toward meeting their individual Renewables Portfolio Standard targets, even if this is not universally the case across all of the local publicly owned electric utilities. Since the start of 2003, the state's local publicly owned electric utilities have issued at least 20 solicitations for new renewables and have added 1,994 MW of renewable energy contracts (or announcements for new utility-owned projects) to their supply, equivalent to 13.5 percent of statewide local publicly owned electric utility retail sales. Approximately half of the new contracts are delivering energy, and most of these contracts are associated with new renewable energy projects constructed since 2002. As a result of the new renewable energy supplies added to local publicly owned electric utilities' resource mixes, local publicly owned electric utility-qualifying renewable energy deliveries increased by 2.8 percent of statewide local publicly owned electric utility retail sales between 2003 and 2006 (2.5 percent if one considers only Energy Commission-eligible supply). In comparison, the state's investor-owned utilities' renewable energy deliveries, as a percentage of retail sales, actually declined over the same time span.

Despite their overall progress, however, California's local publicly owned electric utilities will likely need to accelerate their efforts if they are to meet their self-established renewable energy targets. Reaching their ultimate renewable energy purchase goals will require the state's local publicly owned electric utilities to increase the renewable content of their power mix by 1.6 percent of retail sales per year, on average, which exceeds the 0.9 percent average annual increase during 2003-2006.

CHAPTER 1: Introduction

Policy Background

California has 46 local publicly owned electric utilities (POUs), which, as defined by Public Utilities Code Section 9604 (d), include the state’s municipal utilities, irrigation districts, and joint powers authorities (JPAs).¹ Together, California’s POU serve roughly 25 percent of the state’s retail electricity load.

California’s Renewables Portfolio Standard (RPS) law requires certain retail sellers of electricity to increase the amount of renewable energy they procure each year by at least 1 percent until 20 percent of their retail sales are served with renewable energy by 2010, but specifically excludes POU from the definition of “retail seller.”² Instead, POU are required to implement an RPS, but are given flexibility in developing utility-specific targets, timelines, and resource eligibility rules. As specified in Senate Bill 1078, the state’s original RPS legislation, “Each governing board of a local publicly owned electric utility, as defined in Section 9604, shall be responsible for implementing and enforcing a renewables portfolio standard that recognizes the intent of the Legislature to encourage renewable energy resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.”

Senate Bill 107, signed into law in 2006, established new RPS reporting requirements for the state’s POU beginning in 2007—namely, that they report annually to the California Energy Commission (Energy Commission) on their status in implementing a renewables portfolio standard, their resource mix used to serve customers by fuel type, and their use of public goods

¹ The two JPAs included in this report are the Power & Water Resources Authority (PWRPA) and the Eastside Power Authority (Eastside). PWRPA represents that it sells energy only to the public entities that comprise the JPA itself, which include: Arvin-Edison Water Storage District, Banta-Carbona Irrigation District, Byron-Bethany Irrigation District, Cawelo Water District, Glenn-Colusa Irrigation District, James Irrigation District, Lower Tule River Irrigation District, Princeton-Cordora-Glenn Irrigation District, Provident Irrigation District, Reclamation District 108, Sonoma County Water Agency, Santa Clara Valley Water District, The West Side Irrigation District, West Stanislaus Irrigation District, and Westlands Water District. Eastside’s electric load consists of 31 meter sites owned and operated by the six members of the JPA, which include: Delano-Earlimart Irrigation District, Lindsay-Strathmore Irrigation District, Terra Bella Irrigation District, Kern-Tulare Water District, Rag Gulch Water District, and San Luis Water District.

² Senate Bill 1305 (Sher, Chapter 796, Statutes of 1997); Senate Bill 1078 (Sher, Chapter 516, Statutes of 2002); Senate Bill 107 (Simitian, Chapter 464, Statutes of 2006); SB 1250 (Perata, Chapter 512, Statutes of 2006); Public Utilities Code, Section 399.12(b)(4)(C).

funds for eligible renewable energy resource development.³ In addition, Senate Bill 1305, which passed in 1997 and established power source disclosure requirements for all retail electricity sellers in the state, requires that POU and other retail suppliers submit annual reports to the Energy Commission documenting claims of specific renewables purchases made on their power content labels.

While the SB 107 and SB 1305 reporting requirements provide the Energy Commission with some information for tracking the progress of the state's POU in establishing and implementing RPS policies, they do not provide a complete picture of POU RPS activities. For example, neither reporting requirement provides information on POU renewables solicitations or contracting activities. In addition, although the Energy Commission encourages POU to submit their information promptly, a number of POU have not provided data or have done so inconsistently.⁴ Thus, despite the critical role that POU must play in meeting the state's renewable energy goals, public data on their RPS-related efforts remains incomplete.

Report Overview

To address this information gap, this report describes the progress of California's POU toward implementing the state's Renewables Portfolio Standards.

The report specifically summarizes available data on:

- Utility-specific RPS targets, timelines, and resource eligibility rules.
- Renewable energy deliveries in 2003 and 2006, based on each POU's specific renewable energy purchases and self-established RPS resource eligibility rules ("POU-qualifying deliveries").
- Renewable energy deliveries in 2003 and 2006, based on each POU's specific renewable energy purchases and the Energy Commission's resource eligibility rules as applied to the state's other electricity suppliers under the RPS ("Energy Commission-eligible deliveries").

³ When reporting on their resource mix, POU are required to identify, along with fuel type, separate categories for those fuels that are renewable energy resources under the RPS eligibility criteria for obligated retail sellers, and those that would be eligible except that the electricity is delivered to the POU and not the retail seller. When reporting on their use of public goods funds for eligible renewable energy resource development, POU are required to provide program descriptions and identify expenditures and expected or actual results. Because the Energy Commission is aware that these additional reporting requirements may cause hardships for some small publicly owned utilities, the *2005 Integrated Energy Policy Report* (Publication # CEC-100-2005-007-CMF) suggests, "Consistent with the Energy Commission's 2004 recommendation, the state should establish an exemption process for small publicly owned utilities to avoid the overly burdensome requirements that compliance with RPS goals may present to them." This exemption process is a matter that is still being carefully considered by the Energy Commission.

⁴ For example, 10 POU (representing 70 percent of statewide POU retail sales) submitted a CEC-POU-RPS form in 2007, and 24 POU (representing 87 percent of POU retail sales) submitted a 2006 annual report for the Power Source Disclosure Program.

- Renewable energy solicitations issued since 2002.
- Renewable energy contracts signed, and utility-owned projects announced, since 2002.

Also, this report compares the POU's targets, renewable deliveries, and renewables procurement efforts to that of the state's three major investor-owned utilities (IOUs).

At the time of report preparation and external review, the most current data on the POU's renewable energy deliveries was for 2006. The other information presented in the report (that is, on the POU's RPS policies, renewable energy solicitations, and new renewable energy contracts/projects), however, is current through October 2008. The data presented in this report will be periodically updated and made publicly available in a spreadsheet database, and data on POU's 2007 renewable energy deliveries will be incorporated into the next update to the database.

Data Sources and Conventions

The data reported herein derive from a wide variety of sources, including, where available, formal filings submitted by POU's to the Energy Commission in accordance with their SB 107 and SB 1305 reporting requirements. Specifically, data from form CEC-RPS-POU for 2006, if available, were used to verify each utility's current RPS target, timeline, and eligibility rules. In addition, utilities' SB 1305 Power Source Disclosure Annual Reports for 2003 and 2006, if available, were used to derive their Energy Commission-eligible and POU-qualifying renewables deliveries in those years. A variety of *ad hoc* data sources were also used for information on POU's RPS policies and renewables deliveries (in lieu of formal submittals to the Energy Commission, where those were unavailable) and for information on renewable energy solicitations and contracts. These additional sources include: power content labels, press releases, annual financial reports, city council or utility board meeting notes, integrated resource plans, and other publicly available planning documents prepared by individual POU's.

Several comments are worth noting regarding specific conventions used in relying on these data sources:

Designation of Resources as "Energy Commission-eligible": To determine the amount of energy supplied to each POU from "Energy Commission-eligible" renewables, the authors considered only *resource* eligibility criteria (for example, no large hydroelectric), but did not apply other eligibility criteria (for example, whether the purchases consist of tradable renewable energy credits or if the facility is Energy Commission-certified or Energy Commission-pre-certified).⁵ As such, some of the renewable energy purchases indicated as "Energy Commission-

⁵ RECs and energy procured together as a "bundled" commodity are eligible for the California RPS. RECs sold separately from the underlying energy are termed "tradable" and are not currently eligible toward California RPS procurement requirements. *Renewables Portfolio Standard Eligibility Guidebook, Third Edition*, CEC-300-2007-006-ED3-CMF, January 2008.

eligible” in the pages that follow may represent resources that would not, in fact, be eligible under the California RPS as applied to the state’s IOUs, energy service providers (ESPs), and community choice aggregators (CCAs).⁶

Focus on Specific Renewable Energy Purchases: The values reported for each POU’s Energy Commission-eligible and POU-qualifying renewable energy deliveries reflect only *specific* renewable electricity purchases and exclude the renewable content of generic system power purchases.⁷ The authors apply this treatment to be consistent with the approach used by the state’s IOUs, ESPs, and CCAs, and also to be consistent across POUs (given that many POUs are silent on the question of how generic system power purchases are counted toward their RPS). As a result, the values shown in this report for POU-qualifying renewable energy deliveries (and, by extension, the calculated values for incremental needs) may differ from the values used internally by POUs to track progress toward their RPS target. This method may also yield different renewable percentage values than those shown on power content labels, since those do include the renewable content of generic system power purchases.

Data on specific renewable electricity purchases were obtained from Schedules 2A and 2B of POUs’ *SB 1305 Annual Report* forms. If *SB 1305 Annual Report* forms were unavailable, the authors determined the utility’s specific renewable energy deliveries from its power content label. In this case, the total renewable energy delivery percentages reported on the labels were adjusted to remove the renewable content associated with non-specific purchases. The authors made this adjustment based on the percentage of the utility’s retail sales supplied by generic system power (as reported at the bottom of the power content label) and the renewable content of generic system power for that year (as reported by the Energy Commission in its annual *Net System Power Report*).

Review Process

Multiple requests were submitted to all POUs, and to the California Municipal Utility Association (CMUA) and the Northern California Power Authority (NCPA), to verify the data contained in this report. The initial data verification request was sent in November 2007,

⁶ Although some POUs certify their renewable facilities as RPS-eligible under Energy Commission guidelines, POUs are not required to certify their facilities with the Energy Commission and, in most cases, do not. While the Energy Commission ensures that all eligibility criteria are met during application review, the authors could not verify that all criteria were met if the facility was not certified, and could verify only that the facility used an eligible fuel.

⁷ Prior Energy Commission reports (KEMA, *Publicly Owned Electric Utilities and the California RPS: A Summary of Data Collection Activities*, November 2005, CEC-300-2005-023) presented data on each POU’s supply of Energy Commission-eligible and POU-qualifying resources in 2003. The authors recalculated each POU’s 2003 renewable energy deliveries for this report using the method described in this section, to ensure consistency with the 2006 values. In many cases, the recalculated 2003 values were lower than those previously reported, potentially because the 2003 values presented in earlier reports may have counted the renewable content of generic system power purchases.

followed by requests to review draft versions of the report in March 2008 and July 2008. In addition, numerous requests were sent to individual POU's and to NCPA and CMUA to address specific outstanding questions pertaining to individual utilities. CMUA, NCPA, and most POU's responded to these requests, and the report has benefited greatly from the many helpful comments received by these parties. However, despite the efforts of Energy Commission staff to ensure the completeness and accuracy of the data presented in this report, as well as the cooperation of many POU's, some missing data remains, and a small portion of the reported data has not been explicitly verified by individual POU's.

The Energy Commission welcomes comments on and corrections to the data contained herein. Any such comments will be addressed in any future reports by the Energy Commission on POU RPS implementation and in the Energy Commission's electronic database of POU RPS progress (SEE: http://www.energy.ca.gov/portfolio/POU_database.html).

CHAPTER 2: Current RPS Targets and Timeframes

This chapter describes the RPS policies adopted by California's POU, focusing primarily on targets and timeframes, and to a lesser extent on resource eligibility rules. In reviewing and comparing these policies, two important considerations should be kept in mind. First, the circumstances of the state's POU are highly diverse, which may contribute to some extent to the differences in the specific details of their RPS policies. For example, some POU have pre-existing generation contracts or other supply arrangements covering all, or almost all, of their retail load, which may limit the pace at which new renewables can be added to their supply mix. Other issues, such as varying rates of load growth, the composition of their pre-existing generation mix, and regional resource availability may also contribute to the diversity of RPS policies adopted. Second, it is important to acknowledge that POU's efforts to add renewable energy to their generation mix may extend beyond implementation of an RPS – for example, by offering voluntary green power programs or by providing direct financial incentives for customer-sited renewable generation. Renewable generation added to POU's resource mix from these other programs may be counted separately when measuring progress toward achieving their RPS targets.

With the above caveats in mind, Table 1 describes the current RPS targets and timelines of the state's POU. In this table, and throughout the remainder of the report, the authors include the Plumas-Sierra Rural Electric Cooperative as a POU, since it is believed to have adopted an RPS, even though it does not fit within the definition of a POU formally specified in the Public Utilities Code.⁸ This brings the total number of entities counted as a POU in the report to 47.

As summarized in Table 1, at least 37 POU (including both of the state's large POU, 13 of the 14 medium POU, and 22 small POU⁹), representing 98 percent of statewide POU retail sales, have established specific RPS targets, and 33 of these POU have also established a specific timeframe for achieving their RPS target.¹⁰ Although the details of their policies vary

⁸ Rural electric cooperatives are not formally public utilities, as defined in Section 9604 (d) of the state Public Utilities Code, and therefore are not formally subject to the provisions of the state's RPS law that apply to POU. There are four electric cooperatives operating in California: Anza Electric Cooperative, Plumas-Sierra, Surprise Valley Electrification Corporation, and Valley Electric Association. The authors include coops in this report only if the Energy Commission was able to confirm that they have adopted an RPS target. Of the four electric coops in the state, only Plumas-Sierra appears to have adopted an RPS, and thus only Plumas-Sierra is included in the tables of this report.

⁹ Throughout the tables in this report, the authors segment the POU into large, medium, and small POU. The large POU consist of Los Angeles Department of Water & Power (LADWP) and the Sacramento Municipal Utility District (SMUD), which each have retail sales greater than 10 million MWh per year; medium POU are defined as those with retail sales between 500,000 MWh and 10 million MWh per year; small POU are defined as those with retail sales less than 500,000 MWh per year. The large and medium POU together represent approximately 95 percent of statewide POU retail sales.

¹⁰ Additional POU may have also established RPS targets, but the authors were unable to access information about those targets. A number of the POU for which Table 1 does not identify an RPS target

considerably, almost all POU have adopted RPS targets equal to at least 20 percent of retail sales, and 15 POU (representing 51 percent of statewide POU retail sales) plan to reach 20 percent by 2010 or sooner. Many POU have established RPS targets in excess of 20 percent – for example, 10 POU, representing 52 percent of statewide POU retail sales, have established ultimate RPS targets of 30-35 percent by 2020 or sooner. Among all 33 POU with specific RPS targets *and* timeframes, the load-weighted average RPS target is equal to 12.3 percent of retail sales by 2010 and 26.0 percent of retail sales by 2020.

State law provides the governing board of each POU with the authority to determine the resource eligibility rules under its RPS program. Although this report is not intended to provide a comprehensive review of POU's resource eligibility rules, Table 1 summarizes POU's differing approaches to one particular resource eligibility issue: the treatment of output from large hydroelectric facilities (which, for the purpose of establishing resource eligibility rules for the state's IOUs, ESPs, and CCAs, the Energy Commission generally considers hydroelectric facilities greater than 30 MW to be large hydroelectric and not eligible for the RPS¹¹). At least 22 POU, representing 62 percent of statewide POU retail sales, allow some large hydroelectric plants to qualify toward their RPS targets.¹² Other RPS resource eligibility issues that may differ among POU, and between POU and IOUs, include: whether the RPS target can be met with tradable renewable energy certificates (RECs), deliverability requirements, whether renewables purchased for a voluntary green power program also count toward the RPS, and whether the renewable energy content of generic system power purchases count toward the RPS. Data on these topics are incomplete and thus not presented in this report. For a somewhat dated discussion of the treatment of these resource eligibility issues by California POU, see the Energy Commission's 2005 report on the POU's RPS policies.¹³

In order to quantify and compare the increase in renewable energy associated with the POU's self-established RPS targets, Table 2 presents each POU's renewable energy deliveries in 2003 and the incremental renewable energy needs relative to 2003 levels.¹⁴ The POU's 2003 renewable energy deliveries vary widely – from zero percent to 100 percent in terms of POU-qualifying deliveries, and from zero percent to 55 percent in terms of Energy Commission-

have only recently started service (including City of Industry, McAllister Ranch, Moreno Valley, Power & Water Resources Pooling Authority, and Victorville) and may be in the process of developing their RPS policies.

¹¹ A small hydroelectric facility that is eligible for the RPS is defined as a facility employing one or more hydroelectric turbine generators, the sum capacity of which does not exceed 30 megawatts, except in the case of efficiency improvements or conduit hydroelectric facilities as described in the California Energy Commission Overall Program Guidebook. *Overall Program Guidebook, Second Edition*, CEC-300-2007-003-ED2-CMF, January 2008.

¹² Many POU have pre-existing contracts with, or an ownership stake in large hydroelectric facilities. Based on the data presented in Chapter 3, POU do not appear to have contracted for additional large hydro for the purpose of meeting their RPS targets through 2007.

¹³ KEMA, *Publicly Owned Electric Utilities and the California RPS: A Summary of Data Collection Activities*, November 2005, CEC-300-2005-023.

¹⁴ The authors use 2003 as the baseline year to characterize increases in renewable energy deliveries, because enactment of the state's RPS went into effect on January 1, 2003.

eligible deliveries. In aggregate, for the 30 POU with available data (representing 97 percent of statewide POU retail sales), total POU-Qualifying renewable energy deliveries were 8.4 percent of retail sales in 2003, and Energy Commission-eligible deliveries were 4.8%.

Table 2 describes the corresponding incremental renewable energy need of each POU in terms of both the Total Incremental Need (the final percentage target minus the POU-qualifying renewable energy percentage in 2003) and the Average Annual Incremental Need (Total Incremental Need divided by the number of years between 2003 and the year when the final target is to be achieved).¹⁵

Across all 29 POU for which data on incremental needs are available (representing 97 percent of statewide POU retail sales), the aggregate Total Incremental Need is equal to 21.1 percent of their combined retail sales, and the aggregate Average Annual Incremental Need is equal to 1.5 percent of retail sales per year. As one would expect, the incremental needs of individual POU vary considerably, reflecting both their differing targets and their differing baseline renewable energy deliveries. At one end of the spectrum are 12 POU, representing 10 percent of statewide POU retail sales (Redding, Roseville, Silicon Valley Power, Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Pittsburg, Plumas-Sierra, and Ukiah), that had already reached or surpassed their final RPS targets in 2003 and therefore had no incremental needs.¹⁶ Three of these utilities (Roseville, Redding, and Plumas-Sierra) were able to meet their RPS targets in 2003 by virtue of including large hydro as an eligible resource, while the other 9 POU had already met their final RPS target in 2003 entirely with Energy Commission-eligible renewables. At the other end of the spectrum are LADWP, Burbank, Palo Alto, and Azusa, which have Total Incremental Needs of more than 30 percent of retail sales, relative to 2003 levels. These four POU, plus SMUD and Shasta Lake, have the largest Average Annual Incremental Needs relative to 2003 deliveries – in all cases greater than or equal to 1.8 percent of retail sales per year.

¹⁵ As discussed in the Introduction, the renewable energy deliveries shown in Table 1 reflect only *specific* renewable energy purchases and therefore do not include the renewable content of generic system power purchases. As a result, the values shown may differ from those shown on POU's power content labels and from those used internally by each POU to track progress toward its RPS target. Therefore, the incremental needs shown may be overstated for POU that count the renewable content of generic system power purchases toward their RPS.

¹⁶ Although a number of POU have established interim-year targets, no additional POU had met any interim targets by 2003.

Table 1: POU RPS Targets and Timeframe

| Utility Name | 2006 Retail Sales (MWh) ^(a) | RPS Target (% of Retail Sales) | RPS Timeframe | Large Hydro Qualifies for RPS |
|---|--|--------------------------------|-------------------|-------------------------------|
| Large POUs | | | | |
| Los Angeles Department of Water & Power (LADWP) | 24,313,734 | 20%/35% | 2010/2020 | Partial ^(b) |
| Sacramento Municipal Utility District (SMUD) | 10,799,230 | 10%/20% ^(c) | 2006/2011 | No |
| Medium POUs | | | | |
| Anaheim, City of | 2,598,122 | 20% | 2015 | Yes |
| Burbank, City of | 1,137,703 | 10%/33% | 2011/2020 | Only if "low impact" |
| Glendale, City of | 1,165,857 | 20% | 2017 | Yes |
| Imperial Irrigation District | 3,331,762 | 20%/30% | 2010/2020 | Only if "low impact" |
| Modesto Irrigation District | 2,559,765 | 20% | 2017 | No |
| Palo Alto, City of | 966,111 | 20%/30%/33% ^(d) | 2008/2012/2020 | No |
| Pasadena, City of | 1,229,963 | 10%/20% | 2010/2017 | Only existing large hydro |
| Redding Electric Utility | 799,214 | 20% | 2017 | Yes |
| Riverside, City of | 2,141,999 | 20%/25%/33% | 2010/2015/2020 | No |
| Roseville Electric | 1,215,901 | 20% | 2017 | Yes |
| San Francisco, City and County of | 785,807 | n/d | n/d | n/d |
| Silicon Valley Power (SVP) | 2,718,713 | 20% | No Specified Date | No |
| Turlock Irrigation District | 1,947,950 | 20% | 2017 | No |
| Vernon, City of | 1,162,046 | 5%/20% | 2009/2017 | Yes |
| Small POUs | | | | |
| Alameda Power & Telecom | 377,792 | 40% | 2020 | Yes |
| Azusa Light & Power | 245,182 | 20%/33% | 2010/2020 | No |
| Banning, City of | 150,822 | 20% | 2017 | Yes |
| Biggs Municipal Utilities | 16,061 | 20% | No Specified Date | Yes |
| Cerritos, City of ^(e) | 28,339 | 20% | 2010 | n/d |
| Colton Electric Utility | 349,748 | 15% | 2017 | No |
| Corona, City of | 171,058 | 20% | 2010 | n/d |
| Eastside Power Authority ^(f) | 43,000 | Depends on price | 2005/2010/2020 | Yes |
| Gridley Electric Utility | 33,316 | 20% | No Specified Date | Yes |
| Healdsburg, City of | 73,188 | 20% | 2017 | Yes |
| Hercules Municipal Utility ^(e) | n/d | 20%/30% | 2010/2020 | No |
| Industry, City of ^(e) | n/d | n/d | n/d | n/d |
| Lassen Municipal Utility District | 129,957 | n/d | n/d | n/d |
| Lodi Electric Utility | 459,637 | 20% | 2010 | Yes |
| Lompoc, City of | 135,176 | 20% | No Specified Date | No |
| McAllister Ranch Irrigation District ^(e) | n/a | n/a | n/a | n/a |
| Merced Irrigation District | 375,279 | 15.5% | 2012 | No |
| Moreno Valley Electrical Utility ^(e) | 42,272 | n/d | n/d | n/d |

| Utility Name | 2006 Retail Sales (MWh) ^(a) | RPS Target (% of Retail Sales) | RPS Timeframe | Large Hydro Qualifies for RPS |
|--|--|--------------------------------|-------------------|-------------------------------|
| Needles, City of | 63,486 | 20% | 2010 | n/d |
| Pittsburg, City of | 13,999 | 20%/33% | 2010/2020 | Yes |
| Plumas-Sierra Rural Electric Cooperative | 151,188 | 20% | 2017 | Yes |
| Port of Oakland | 78,402 | 20% Goal, 40% Objective | 2017 | Yes |
| Port of Stockton | n/d | 20% | 2010 | n/d |
| Power & Water Resources Pooling Authority (PWRPA) ^(e) | 283,079 | n/d | n/d | n/d |
| Rancho Cucamonga Municipal Utility ^(e) | n/d | 20%/33% | 2010/2020 | n/d |
| Shasta Lake, City of | 71,450 | 20% | 2010 | No |
| Shelter Cove Resort Improvement District | n/d | n/d | n/d | n/d |
| Trinity Public Utilities District ^(g) | 87,464 | No Specific Target | n/a | Yes |
| Truckee Donner Public Utilities District | 143,908 | 21% | 2010 | Yes |
| Ukiah, City of | 115,780 | 20% | No Specified Date | Yes |
| Victorville Municipal Utilities Services ^(e) | n/d | n/d | n/d | n/d |
| Load-weighted average target (2010): | | 12.3% | | |
| Load-weighted average target (2020): | | 26.0% | | |

n/d = no data, n/a = not applicable

(a) Retail sales data based on EIA Form-861 for 2006.

(b) LADWP allows generation from five hydroelectric facilities with nameplate capacity greater than 30 MW to qualify for its RPS.

(c) SMUD has overall renewable energy goals of 8.8 percent by 2006 and 23 percent renewables by 2011, which includes goals for its RPS and its voluntary green energy program. The goals for the RPS, alone, are 6 percent by 2006 and 20 percent by 2011, as indicated in the table.

(d) Palo Alto's RPS can be met only by new renewables constructed or re-powered after October 2002.

(e) Applicable data fields are marked "n/a" for years in which utilities did not provide retail electric service. Cerritos, City of Industry, Hercules, Moreno Valley, PWRPA, Rancho Cucamonga, and Victorville did not provide retail electric service in 2003. McAllister Ranch did not provide retail electric service in 2003 or 2006; the utility was briefly in operation in 2007, but is no longer in service.

(f) Eastside's RPS policy sets a range of percentage targets, and the actual target depends on the price of renewables relative to forward electric power market prices. The target range was 0-25 percent for 2005 and is 10-50 percent for 2010 and 20-80 percent for 2020. The target is equal to the lower end of the range if renewables are available "at or below Marginal Heavy-load cost in Third Quarter", and the target is equal to the upper end of the range if renewables are available "at or below Average Market cost or below (sic)."

(g) Trinity PUD has a legislative right to up to 25 percent of the energy from the Trinity River Division of the Central Valley Project, which will provide enough generation to fully meet Trinity PUD's entire load for the foreseeable future. As such, Trinity PUD does not have a specific RPS percentage target, but plans to acquire only CEC-eligible resources for meeting all future resource needs not supplied by its legislative right to hydroelectric generation from the Trinity River. For this reason, Trinity's RPS timeframe is identified as "n/a".

Table 2: 2003 Renewable Energy Deliveries and Incremental Needs

| Utility | 2003 Renewable Energy Deliveries (% of Retail Sales) | | Incremental Needs Relative to 2003 POU-Qualifying Deliveries (% of Retail Sales) | |
|----------------------------------|---|----------------|--|----------------|
| | CEC-Eligible | POU-Qualifying | Total | Average Annual |
| Large POUs | | | | |
| LADWP | 1.6% | 4.2% | 30.8% | 1.8% |
| SMUD | 4.8% | 4.8% | 15.2% | 1.9% |
| Medium POUs | | | | |
| Anaheim | 0.1% | 4.3% | 15.7% | 1.3% |
| Burbank | 0.3% | 0.3% | 32.7% | 1.9% |
| Glendale | 7.4% | 13.1% | 6.9% | 0.5% |
| Imperial | 8.4% | 8.4% | 21.6% | 1.3% |
| Modesto | 0.0% | 0.0% | 20.0% | 1.4% |
| Palo Alto | 2.4% | 0.0% | 33.0% | 1.9% |
| Pasadena | 0.6% | 4.9% | 15.1% | 1.1% |
| Redding | 4.8% | 39.3% | 0.0% | 0.0% |
| Riverside | 13.4% | 13.4% | 19.6% | 1.2% |
| Roseville | 8.8% | 40.9% | 0.0% | 0.0% |
| San Francisco | n/d | n/d | n/d | n/d |
| Silicon Valley Power | 23.2% | 23.2% | 0.0% | 0.0% |
| Turlock | 6.7% | 6.7% | 13.3% | 0.9% |
| Vernon | 0.0% | 2.3% | 17.7% | 1.3% |
| Small POUs | | | | |
| Alameda | 54.7% | 90.9% | 0.0% | 0.0% |
| Azusa | 2.2% | 2.2% | 30.8% | 1.8% |
| Banning | 0.0% | 0.0% | 20.0% | 1.4% |
| Biggs | 27.9% | 100.0% | 0.0% | 0.0% |
| Cerritos ^(a) | n/a | n/a | n/a | n/a |
| Colton | 2.3% | 2.3% | 12.7% | 0.9% |
| Corona | n/d | n/d | n/d | n/d |
| Eastside ^(b) | n/d | n/d | n/d | n/d |
| Gridley | 21.6% | 100.0% | 0.0% | 0.0% |
| Healdsburg | 54.7% | 85.9% | 0.0% | 0.0% |
| Hercules ^(a) | n/a | n/a | n/a | n/a |
| Industry, City of ^(a) | n/a | n/a | n/a | n/a |
| Lassen | n/d | n/d | n/d | n/d |
| Lodi | 27.1% | 48.6% | 0.0% | 0.0% |
| Lompoc | 30.3% | 54.1% | 0.0% | 0.0% |
| McAllister Ranch ^(a) | n/a | n/a | n/a | n/a |
| Merced | 3.0% | 10.3% | 5.2% | 0.6% |
| Moreno Valley ^(a) | n/a | n/a | n/a | n/a |
| Needles | 0.0% | n/d | n/d | n/d |
| Pittsburg ^(c) | n/d | 74.0% | 0.0% | 0.0% |

| Utility | 2003 Renewable Energy Deliveries (% of Retail Sales) | | Incremental Needs Relative to 2003 POU-Qualifying Deliveries (% of Retail Sales) | |
|---------------------------------|---|----------------|--|----------------|
| | CEC-Eligible | POU-Qualifying | Total | Average Annual |
| Plumas-Sierra | 6.0% | 71.0% | 0.0% | 0.0% |
| Port of Oakland | n/d | n/d | n/d | n/d |
| Port of Stockton | n/d | n/d | n/d | n/d |
| PWRPA ^(a) | n/a | n/a | n/a | n/a |
| Rancho Cucamonga ^(a) | n/a | n/a | n/a | n/a |
| Shasta Lake | 0.0% | 1.0% | 19.0% | 2.7% |
| Shelter Cove | n/d | n/d | n/d | n/d |
| Trinity ^(d) | 0.0% | 100.0% | n/a | n/a |
| Truckee Donner | 0.0% | n/d | n/d | n/d |
| Ukiah | 55.0% | 90.6% | 0.0% | 0.0% |
| Victorville ^(a) | n/a | n/a | n/a | n/a |
| Load-Weighted Average | 4.8% | 8.4% | 21.1% | 1.5% |

(a) Applicable data fields are marked "n/a" for years in which utilities did not provide retail electric service. Cerritos, Hercules, City of Industry, Moreno Valley, PWRPA, Rancho Cucamonga, and Victorville did not provide retail electric service in 2003. McAllister Ranch did not provide retail electric service in 2003 or 2006; the utility was briefly in operation in 2007, but is no longer in service.

(b) According to documents provided by Eastside, it currently has a contract for 0.644 percent of the output from the Central Valley Project power available for commercial delivery, which on average meets 46 percent of Eastside's annual demand. Eastside did not provide any additional information about the composition of its generation supply portfolio, thus its renewable energy deliveries and incremental needs are identified as "n/d."

(c) Pittsburg purchases all of its generation supply from WAPA. A portion of the hydroelectric energy purchased is from CEC-eligible hydro; however the exact percentage is unknown. Thus, CEC-eligible delivery percentages are shown as "n/d".

(d) Trinity plans to meet incremental resource needs with Energy Commission-eligible resources, but does not have a specific numerical RPS target. For this reason, it's incremental needs are identified as "n/a".

Source: KEMA

CHAPTER 3: Progress Toward Meeting RPS Targets

The state's POU's have undertaken a variety of procurement activities to increase their renewables deliveries since enactment of the state's RPS requirements. In this chapter, the POU's' renewables solicitations issued since 2002, new renewables contracts and utility-owned projects, and the POU's' overall progress toward meeting their RPS targets are summarized. Both utility-specific and aggregate POU data are presented.

Renewable Energy Solicitations

Since the beginning of 2003, the state's POU's have issued at least 20 renewable energy solicitations (see Table 3), six of which were joint solicitations involving multiple POU's issued through the Northern California Power Agency (NCPA) or the Southern California Public Power Agency (SCPPA). At least nine solicitations have been announced since the beginning of 2007, demonstrating increasing interest among POU's in executing renewable energy contracts.

Worth noting is that – even though large hydropower is eligible under a number of POU RPS requirements – the solicitations for new resources shown in Table 3 have focused exclusively on Energy Commission-eligible resource types. On the other hand, though not shown in Table 3, some of the solicitations allow tradable renewable energy certificates (RECs) to qualify, which are not currently allowed for the state's IOUs, ESPs, and CCAs.

Table 3: Renewable Solicitations Issued by POU's Since 2002

| Issued By | Date of Solicitation | Technologies Requested^(a) | Capacity Solicited (MW) | Energy Solicited (GWh/yr) |
|------------------|-----------------------------|---|--------------------------------|----------------------------------|
| SMUD | Aug-08 | CEC Eligible | not stated | not stated |
| Modesto | Apr-08 | CEC-Eligible | 150 | not stated |
| SMUD | Jan-08 | CEC-Eligible | not stated | not stated |
| SCPPA | Nov-07 | CEC-Eligible | 315 | not stated |
| NCPA | Nov-07 | CEC-Eligible | 58 | not stated |
| Imperial | Nov-07 | CEC-Eligible | 75 | 558 |
| Palo Alto | Jul-07 | CEC-Eligible | not stated | 280 |
| SMUD | Apr-07 | CEC-Eligible | not stated | not stated |
| LADWP | Jan-07 | CEC-Eligible | not stated | 2200 |
| Turlock | Oct-06 | CEC-Eligible | not stated | 260 |
| SCPPA | Sep-06 | CEC-Eligible | 300 | not stated |
| NCPA | Sep-06 | CEC-Eligible | 79 | not stated |
| SMUD | Aug-06 | CEC-Eligible | not stated | not stated |
| Imperial | Oct-05 | CEC-Eligible | not stated | 460 |
| SCPPA | Aug-05 | CEC-Eligible | < 75 | not stated |

| Issued By | Date of Solicitation | Technologies Requested^(a) | Capacity Solicited (MW) | Energy Solicited (GWh/yr) |
|------------------|-----------------------------|---|--------------------------------|----------------------------------|
| Palo Alto | Aug-05 | CEC-Eligible | not stated | 220 |
| Modesto | Feb-05 | Wind | 10 - 25 | not stated |
| LADWP | Jun-04 | CEC-Eligible | not stated | 1310 |
| SMUD | Jun-04 | CEC-Eligible | not stated | 410 - 2250 |
| NCPA | Mar-03 | CEC-Eligible | 30 - 85 | not stated |

(a) Some of the solicitations do not explicitly identify Energy Commission-eligible as a requirement, but define eligible technologies to be largely consistent with the Energy Commission's eligibility criteria. There are some modest exceptions. SCPPA's solicitations do not reference Energy Commission eligibility, but indicate "any certifiable renewable energy." Many of the solicitations provide greater delivery flexibility than allowed for the state's IOUs, ESPs, and CCAs, however, or even allow tradable RECs.

Source: KEMA

Renewable Energy Contracts and Projects

The authors identified 105 renewable energy contracts signed and POU-owned projects announced since 2002, some of which are associated with the solicitations identified above.¹⁷ Information on these contracts and projects was compiled from a diverse range of sources, including press releases, annual reports, and utility planning documents. Appendix A provides details on each of these new contracts and projects. Tables 4-8 show the data parsed out by delivery date, utility, technology, ownership (utility vs. PPA), location (in state vs. out of state), and new vs. existing (defined for this report renewable facilities that were operational before 2002).

As summarized in Table 4, these new renewable energy projects and contracts represent a combined 1,994 MW of nameplate capacity, equal to 13.5 percent of statewide POU retail sales in 2006.¹⁸ These contracts and projects add to the POU renewable energy commitments made prior to 2003. Over half of this total – 939 MW nameplate capacity and 6.6 percent of total POU retail sales – was on-line by the end of 2007, with the remainder planned for future years. Of the 939 MW on-line by the end of 2007, 722 MW was associated with facilities constructed since 2002.

In 2007, six new renewable energy contracts and POU-owned projects, totaling 148 MW nameplate capacity, began delivery, including:

¹⁷ POU-owned projects announced since 2002 include those that have been constructed since 2002 and are already in operation as well as those that are under development or for which the utility has made some firm commitment to pursue. As will be clear in the pages that follow, relatively few projects fall into the latter category.

¹⁸ For contracts and projects where information on expected annual energy deliveries was not available, the authors estimated annual energy deliveries from the reported nameplate capacity using stipulated capacity factors (35 percent for wind, 85 percent for LFG and biomass, 90 percent for geothermal, and 50 percent for small hydro).

- Anaheim's two-year contract with Brea Power Partners for energy delivered from a pre-existing 5 MW landfill gas (LFG) project in the city of Brea.
- LADWP's five-year contract with Powerex for energy delivered from multiple pre-existing small hydro facilities, totaling 50 MW nameplate capacity, located in the Pacific Northwest.
- Pasadena's 25-year contract with Minnesota Methane for deliveries from pre-existing LFG projects in West Covina and Visalia, totaling 9 MW.
- SMUD's 63 MW expansion to its Solano Wind Project.
- SMUD's contract with Sacramento County for energy delivered from a new 5.7 MW expansion to the LFG project at Kiefer landfill.
- SMUD's 10-year contract with Sierra Pacific Industries for energy delivered from a new 15 MW biomass project at a wood products facility in Northern California.

Table 4: Renewable Energy Contracts and Projects by Delivery Year, Since 2002

| Actual/Expected Contract Delivery Date | No. of Contracts/ Projects | Nameplate Capacity (MW) | % of 2006 Statewide POU Retail Sales |
|---|-----------------------------------|--------------------------------|---|
| 2003 - actual | 15 | 149 | 1.1% |
| 2004 - actual | 5 | 107 | 1.0% |
| 2005 - actual | 6 | 52 | 0.3% |
| 2006 - actual | 20 | 445 | 2.3% |
| 2007 - actual | 6 | 148 | 1.4% |
| 2008 - expected | 25 | 422 | 2.2% |
| 2009 - expected | 7 | 300 | 2.0% |
| 2010 - expected | 3 | 30 | 0.4% |
| post-2010 - expected | 13 | 323 | 2.7% |
| unknown delivery date – on-line by year-end 2007 | 4 | 13 | 0.1% |
| unknown delivery date – under development as of year-end 2007 | 1 | 7 | 0.0% |
| TOTAL (on-line by year-end 2007)^(a) | 57 | 939 | 6.6% |
| TOTAL (on-line & under development) | 105 | 1,994 | 13.5% |

Note: Rows may not sum to total due to rounding.

- (a) The totals shown for projects on-line by 2007 year-end are the sum of the corresponding values for:
- (a) contracts with delivery dates from 2003 to 2007, (b) contracts with facilities that were on-line by year-end 2007, with an unknown contract delivery date, and (c) a 26 MW increase in Riverside's share of an existing geothermal facility that is scheduled to begin in 2009. That latter contract is one of the seven contracts shown as having an expected contract delivery date in 2009. All of the other contracts with expected delivery dates after 2007 are with facilities that were not on-line as of year-end 2007.

Source: KEMA

Table 5 summarizes the same data as Table 4, but on a POU-specific basis. As shown, the degree of contracting activity has differed widely among utilities, in part reflecting the POU's varying

incremental needs. Since 2002, seven POU's have signed contracts or announced new utility-owned projects equal to 20 percent or more of their 2006 retail sales, including facilities both on-line and under development. Nineteen POU's have signed contracts or announced projects equal to 10 percent or more of their retail sales, including 11 of the state's large and medium-sized POU's. Focusing only on facilities already *on-line* at year-end 2007, 10 utilities have signed contracts and/or constructed projects since 2002 that collectively are already delivering to 10 percent or more of their 2006 retail sales.

Table 5: Renewable Energy Contracts and Projects by Utility, Since 2002

| Utility | Total (On-line & Under Development) | | | On-line as of Year-End 2007 ^(a) | | |
|-------------------------------------|---|-----|------------------------------|--|-----|------------------------------|
| | Number of Contracts / Projects | MW | % of 2006 Retail Sales | Number of Contracts / Projects | MW | % of 2006 Retail Sales |
| Large POU's | | | | | | |
| LADWP | 17 | 853 | 13.6% | 4 | 143 | 3.1% |
| SMUD | 11 | 261 | 12.0% | 10 | 261 | 12.0% |
| Medium POU's | | | | | | |
| Anaheim | 7 | 100 | 22.3% | 4 | 53 | 8.4% |
| Burbank | 5 | 27 | 7.3% | 2 | 5 | 1.4% |
| Glendale | 5 | 41 | 10.9% | 2 | 19 | 4.7% |
| Imperial | 1 | 1 | 0.1% | 1 | 1 | 0.1% |
| Modesto | 3 | 100 | 12.0% | 3 | 100 | 12.0% |
| Palo Alto | 5 | 54 | 20.6% | 3 | 47 | 15.0% |
| Pasadena | 5 | 30 | 14.2% | 3 | 18 | 8.9% |
| Redding ^(b) | 2 | 80 | 36.2% | 1 | 70 | 26.9% |
| Riverside | 12 | 125 | 43.8% | 10 | 54 | 19.3% |
| Roseville ^(b) | 1 | 2 | 1.1% | 1 | 2 | 1.1% |
| San Francisco | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Silicon Valley Power ^(b) | 3 | 128 | 15.0% | 2 | 125 | 14.1% |
| Turlock | 2 | 101 | 16.0% | 0 | 0 | 0.0% |
| Vernon | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Small POU's | | | | | | |
| Alameda ^(b) | 6 | 23 | 32.1% | 3 | 14 | 14.1% |
| Azusa | 3 | 14 | 16.3% | 2 | 7 | 7.4% |
| Banning | 1 | 2 | 10.5% | 1 | 2 | 10.5% |
| Biggs ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Cerritos | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Colton | 2 | 4 | 5.4% | 2 | 4 | 5.4% |
| Corona | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Eastside | 5 | 3 | 14.7% | 0 | 0 | 0.0% |
| Gridley ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Healdsburg ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Hercules | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Industry, City of | 0 | 0 | 0.0% | 0 | 0 | 0.0% |

| Utility | Total (On-line & Under Development) | | | On-line as of Year-End 2007 ^(a) | | |
|------------------------------|---|--------------|------------------------------|--|------------|------------------------------|
| | Number of Contracts / Projects | MW | % of 2006 Retail Sales | Number of Contracts / Projects | MW | % of 2006 Retail Sales |
| Lassen | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Lodi ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Lompoc ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| McAllister Ranch | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Merced | 1 | 5 | 4.1% | 1 | 5 | 4.1% |
| Moreno Valley | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Needles | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Pittsburg ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Plumas-Sierra ^(b) | 2 | 25 | 53.5% | 0 | 0 | 0.0% |
| Port of Oakland | 1 | 2 | 18.0% | 0 | 0 | 0.0% |
| Port of Stockton | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| PWRPA | 1 | 6 | 16.8% | 1 | 6 | 16.8% |
| Rancho Cucamonga | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Shasta Lake | 1 | 1 | 4.9% | 0 | 0 | 0.0% |
| Shelter Cove | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Trinity ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Truckee Donner | 3 | 8 | 34.3% | 1 | 3 | 10.3% |
| Ukiah ^(b) | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Victorville | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| Total | 105 | 1,994 | 13.5% | 57 | 939 | 6.6% |

Note: Rows may not sum to Total due to rounding.

- (a) The total for projects on-line by 2007 year-end includes a single project that was on-line by 2007 year-end, but not yet delivering energy to a California POU: a 26 MW increase in Riverside's share of an existing geothermal facility, scheduled to begin in 2009.
- (b) Redding, Roseville, Silicon Valley Power, Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Pittsburg, Plumas-Sierra, and Ukiah fully met their RPS target in 2003 and therefore had no need to procure additional renewables for meeting their RPS targets. Similarly, Trinity has had no incremental renewable procurement needs since 2003, as its RPS policy calls for additional renewables purchases to meet resource needs not supplied by its legislative right to hydroelectric generation from the Trinity River, which currently supplies its entire retail load.

Source: KEMA

As indicated in Table 6, the vast majority of renewable energy projects procured by or under contract to the POUs since 2002 have been wind power projects, representing 1,467 MW (74 percent) of the 1,994 MW total. Geothermal, landfill gas (LFG), and municipal solid waste (MSW) each constitute approximately 100-200 MW, with smaller contributions from biomass, small hydro, and photovoltaic (PV). Most of the geothermal and small hydro, and much of the LFG, procured by POUs since 2002 is associated with pre-existing facilities constructed before the state's RPS. In contrast, virtually all of the wind power (as well as the biomass and MSW) procured or contracted by POUs since 2002 is associated with projects announced and/or constructed after 2002.

Table 6: Nameplate Capacity of Renewable Energy Contracts and Projects by Technology, Since 2002 (MW)

| Technology | On-line as of Year-End 2007 ^(a) | | New Facilities Under Development | Total |
|--------------|--|----------------------------|----------------------------------|--------------|
| | Pre-Existing Facilities | New Facilities (post-2002) | | |
| Wind | 21 | 669 | 776 | 1,467 |
| Geothermal | 102 | 17 | 94 | 213 |
| Biomass | 0 | 15 | 17 | 32 |
| LFG | 35 | 19 | 54 | 108 |
| MSW | 0 | 0 | 100 | 100 |
| Small Hydro | 59 | 1 | 9 | 69 |
| PV | 0 | 1.3 | 3.6 | 4.9 |
| TOTAL | 217 | 722 | 1,055 | 1,994 |

Note: Rows may not sum to Total due to rounding.

(a) The total for projects on-line by 2007 year-end includes a single project that was on-line by 2007 year-end but not yet delivering energy to a California POU: a 26 MW increase in Riverside's share of an existing geothermal facility, scheduled to begin in 2009.

Source: KEMA

As shown in Table 7, the vast majority of projects procured or contracted since 2002 by the state's POUs (1,482 MW out of the 1,994 MW total) have been in the form of power purchase agreements (PPAs). Utility-owned projects consist primarily of three SMUD-owned wind projects (102 MW currently on-line), LADWP's Pine Tree wind project (120 MW under development), LADWP's Pine Canyon wind project (150 MW under development), and four LADWP MSW projects (100 MW total under development).

Table 7: Nameplate Capacity of Renewable Energy Contracts and Projects by Ownership, Since 2002 (MW)

| Project Ownership | On-line as of Year-End 2007 ^(a) | | Under Development | Total |
|-------------------|--|----------------------------|-------------------|--------------|
| | Pre-Existing Facilities | New Facilities (post-2002) | | |
| PPA | 217 | 618 | 647 | 1,482 |
| POU-Owned | 0 | 105 | 408 | 513 |
| TOTAL | 217 | 722 | 1,055 | 1,994 |

Note: Rows may not sum to Total due to rounding.

(a) The total for projects on-line by 2007 year-end includes a single project that was on-line by 2007 year-end, but not yet delivering energy to a California POU: a 26 MW increase in Riverside's share of an existing geothermal facility, scheduled to begin in 2009.

Source: KEMA

Finally, Table 8 shows what portion of these projects has been sourced from facilities located in California or out-of-state. Overall, more than 40 percent of the renewables added to POU's resource mix since 2002, as well as over 50 percent of renewables under development, derive from resources located out-of-state. These out-of-state resources consist primarily of the following large wind power projects, most of which have contracts with multiple POU's:

- Pleasant Valley (Wyoming, 127 MW, deliveries beginning in 2005 and 2006).
- Big Horn (Washington, 200 MW, deliveries beginning in 2006).
- Pebble Creek (Oregon, 99 MW, deliveries expected to begin in 2008).
- Milford Wind Corridor Phase 1 (Utah, 195 MW, deliveries expected to begin in 2008).
- Windy Point (Washington, 100 MW, deliveries expected to begin in 2009).

In addition, Anaheim and Riverside have both recently signed contracts for new geothermal projects located in Utah, totaling 86 MW.

Table 8: Nameplate Capacity of Renewable Energy Contracts and Projects by Location, Since 2002 (MW)

| Location | On-line as of Year-End 2007 ^(a) | | Under Development | Total |
|--------------|--|----------------------------|-------------------|--------------|
| | Pre-Existing Facilities | New Facilities (post-2002) | | |
| California | 160 | 380 | 498 | 1,038 |
| Out-of-State | 57 | 342 | 557 | 956 |
| TOTAL | 217 | 722 | 1,055 | 1,994 |

Note: Rows may not sum to Total due to rounding.

(a) The total for projects on-line by 2007 year-end includes a single project that was on-line by 2007 year-end, but not yet delivering energy to a California POU: a 26 MW increase in Riverside's share of an existing geothermal facility, scheduled to begin in 2009.

Source: KEMA

Renewable Energy Deliveries and Incremental Needs as of Year-End 2006

This section presents data describing the progress that POU's made over the period 2003-2006 towards achieving their RPS targets. Although POU's have submitted data on their 2007 renewable energy deliveries, at the time that the report was initially sent out for review to POU's, 2006 was the most recent year of data available. Data on POU's 2007 renewable energy deliveries will be incorporated into any subsequent updates of this report. Given that the data presented here extend only through 2006, though, it is important to note that they may not reflect several critical policy developments – most importantly, SB 107 and AB 32 – which

occurred during or after 2006. These recent policy developments may very well result in accelerated efforts by California's POU's to add renewables to their resource mix, relative to the pace of progress over the 2003-2006 time period discussed here. Thus, the data presented in this section is best understood as a snapshot of POU efforts over the 2003-2006 timeframe, and not necessarily representative of their current level of effort.

Table 9 presents data on each utility's POU-qualifying and Energy Commission-eligible renewable energy deliveries in 2006, the change in their renewables deliveries from 2003 to 2006, and the remaining incremental needs relative to 2006 levels. As with the 2003 data presented earlier, the 2006 data are based primarily on information reported by POU's on their annual reports submitted to the Energy Commission under the Power Source Disclosure Program. As previously discussed, these values reflect only *specific* renewable energy purchases (as identified on Schedules 2A and 2B of the annual report forms) and exclude the renewable content of generic system power purchases.

Across the 33 POU's with available data (representing 97 percent of total POU retail sales), POU-qualifying renewable energy deliveries in 2006 totaled 11.5 percent of POU retail sales, in aggregate. In comparison, Energy Commission-eligible renewable energy deliveries in 2006 were equal to 7.4 percent of POU retail sales, in aggregate. As of the end of 2006, 13 POU's had met their final RPS target, which consists of the 12 POU's that had already met their target as of 2003 (identified previously) plus Hercules Municipal Utility. In addition, by 2006, SMUD had successfully reached its interim target for 2011.¹⁹

In aggregate, POU-qualifying renewables increased by 2.8 percent of POU retail sales from 2003 to 2006, and Energy Commission-eligible renewables increased by 2.5 percent of retail sales. Although the overall increase in Energy Commission-eligible deliveries is somewhat smaller than the increase in POU-qualifying deliveries (2.5 percent compared to 2.8 percent), the difference is not large, suggesting that POU's have generally increased their supply of renewables by procuring the same types of resources as are allowed under the RPS eligibility rules applied to the state's IOUs, ESPs, and CCAs.²⁰ In particular, it does not appear that POU's are seeking to increase their renewable percentages by contracting for additional large hydro.²¹

Many utilities increased their renewable energy deliveries by much greater percentages than the overall POU load-weighted average. For example, seven POU's (SMUD, Modesto, Palo Alto, Redding, Banning, Lompoc, and Plumas-Sierra) increased their POU-qualifying renewable

¹⁹ No other POU's appear to have reached an interim target, beyond those that had met their final target.

²⁰ For their purposes, the authors considered only resource technology type when determining the POU's' Energy Commission-eligible renewable energy deliveries. Thus, some portion of the increase in renewable deliveries reported for some POU's may include resources that would not meet the Energy Commission eligibility rules related to location, deliverability, or use of tradable RECs.

²¹ Some POU's' large hydro deliveries may have decreased over the 2003-2006 period, while other POU's' large hydro deliveries may have increased, as a result of the Western Area Power Administration's reallocation in 2005.

energy deliveries by more than 5 percent of retail sales over this period.²² Other utilities achieved much smaller gains than the overall average, and some utilities registered a decrease in POU-qualifying deliveries (as a percentage of load). The change in POU-qualifying deliveries may, for some POUs, reflect differing hydroelectric production in 2006 compared to 2003, or a change in the utility's allotment of power from federal hydropower projects.

To some extent, the change in renewable energy deliveries of individual POUs also reflects their baseline incremental needs in 2003. For example, 10 of the 16 POUs whose renewable energy deliveries increased by less than 1 percent of retail sales from 2003-2006 had already met their renewable energy targets in 2003, and thus had no need to procure additional renewables. Gauging POUs' progress towards their RPS targets may therefore best be accomplished by focusing in particular on the 17 POUs, representing 87 percent of statewide POU retail sales, that had not already met their target in 2003 and for which 2003 and 2006 renewable energy delivery data is available. Among these 17 POUs, POU-qualifying deliveries and Energy Commission-eligible deliveries both increased by 3.0 percent from 2003-2006, in aggregate. As with the larger sample of POUs, although virtually all POUs made some progress towards increasing their renewable energy deliveries, the degree of progress varied widely across individual POUs, with five POUs registering an increase in POU-qualifying deliveries of more than 4 percent of retail sales, and six POUs registering an increase of less than 1 percent.

Table 9 also presents data on the POUs' remaining incremental needs, relative to their 2006 deliveries. To meet their own targets, POUs must collectively increase their POU-qualifying renewable energy deliveries by an additional 18.4 percent of retail sales relative to 2006 levels, or 1.6 percent annually, on average. New contracts that began delivery since 2006, new contracts with projects that are currently under development (Table 4), and new contracts that have yet to be announced from recent solicitations (Table 3) will likely fill some of the POUs' remaining incremental needs.

²² Redding's large increase in POU-qualifying renewable energy deliveries is in large part (though not entirely) attributable to an increase in large hydroelectric generation in 2006, relative to 2003 levels.

Table 9: POU Progress in Meeting Utility-Specific RPS Targets through 2006 and Remaining Incremental Needs

| Utility Name | 2006 Renewable Energy Deliveries (% of Retail Sales) | | 2003-2006 Change in Renewable Energy Deliveries (% of Retail Sales) | | Incremental Needs Relative to 2006 POU-Qualifying Deliveries (% of Retail Sales) | |
|-------------------------|---|----------------|---|----------------|--|----------------|
| | CEC-Eligible | POU-Qualifying | CEC-Eligible | POU-Qualifying | Total | Average Annual |
| Large POU s | | | | | | |
| LADWP | 3.8% | 6.6% | 2.2% | 2.4% | 28.4% | 2.0% |
| SMUD | 10.9% | 10.9% | 6.0% | 6.0% | 9.1% | 1.8% |
| Medium POU s | | | | | | |
| Anaheim | 4.5% | 8.6% | 4.4% | 4.3% | 11.4% | 1.3% |
| Burbank | 0.6% | 0.6% | 0.3% | 0.3% | 32.4% | 2.3% |
| Glendale | 10.2% | 15.8% | 2.7% | 2.7% | 4.2% | 0.4% |
| Imperial | 7.4% | 7.4% | -1.1% | -1.1% | 22.6% | 1.6% |
| Modesto | 6.6% | 6.6% | 6.6% | 6.6% | 13.4% | 1.2% |
| Palo Alto | 12.3% | 8.1% | 9.9% | 8.1% | 24.9% | 1.8% |
| Pasadena | 1.9% | 6.2% | 1.3% | 1.3% | 13.8% | 1.3% |
| Redding | 8.1% | 61.6% | 3.3% | 22.3% | 0.0% | 0.0% |
| Riverside | 13.1% | 13.1% | -0.3% | -0.3% | 19.9% | 1.4% |
| Roseville | 7.4% | 37.3% | -1.4% | -3.6% | 0.0% | 0.0% |
| San Francisco | n/d | n/d | n/d | n/d | n/d | n/d |
| Silicon Valley Power | 21.1% | 21.1% | -2.1% | -2.1% | 0.0% | 0.0% |
| Turlock | 8.0% | 8.0% | 1.3% | 1.3% | 12.0% | 1.1% |
| Vernon | 0.0% | 2.2% | 0.0% | -0.2% | 17.8% | 1.6% |
| Small POU s | | | | | | |
| Alameda | 48.7% | 86.1% | -6.0% | -4.8% | 0.0% | 0.0% |
| Azusa | 6.1% | 6.1% | 3.8% | 3.8% | 26.9% | 1.9% |
| Banning | 4.0% | 5.0% | 4.0% | 5.0% | 15.0% | 1.4% |
| Biggs | 14.7% | 99.5% | -13.2% | -0.5% | 0.0% | 0.0% |
| Cerritos ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Colton | 4.0% | 4.0% | 1.7% | 1.7% | 11.0% | 1.0% |
| Corona | 0.0% | n/d | n/d | n/d | n/d | n/d |
| Eastside ^(b) | n/d | n/d | n/d | n/d | n/d | n/d |
| Gridley | 10.1% | 100.0% | -11.5% | 0.0% | 0.0% | 0.0% |
| Healdsburg | 46.8% | 79.3% | -8.0% | -6.7% | 0.0% | 0.0% |

| Utility Name | 2006 Renewable Energy Deliveries (% of Retail Sales) | | 2003-2006 Change in Renewable Energy Deliveries (% of Retail Sales) | | Incremental Needs Relative to 2006 POU-Qualifying Deliveries (% of Retail Sales) | |
|----------------------------------|---|----------------|---|----------------|--|----------------|
| | CEC-Eligible | POU-Qualifying | CEC-Eligible | POU-Qualifying | Total | Average Annual |
| Hercules ^(a) | 35.0% | 35.0% | n/a | n/a | 0.0% | 0.0% |
| Industry, City of ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Lassen | n/d | n/d | n/d | n/d | n/d | n/d |
| Lodi | 22.2% | 47.8% | -4.9% | -0.8% | 0.0% | 0.0% |
| Lompoc | 50.0% | 98.6% | 19.8% | 44.5% | 0.0% | 0.0% |
| McAllister Ranch ^(a) | n/a | n/a | n/a | n/a | n/a | n/a |
| Merced | 3.1% | 8.3% | 0.1% | -2.0% | 7.2% | 1.2% |
| Moreno Valley ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Needles | 0.0% | n/d | 0.0% | n/d | n/d | n/d |
| Pittsburg ^(c) | n/d | 40.0% | n/d | -34.0% | 0.0% | 0.0% |
| Plumas-Sierra | 6.0% | 77.0% | 0.0% | 6.0% | 0.0% | 0.0% |
| Port of Oakland | 1.0% | 100.0% | n/d | n/d | n/a | n/a |
| Port of Stockton | n/d | n/d | n/d | n/d | n/d | n/d |
| PWRPA ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Rancho Cucamonga ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Shasta Lake | 0.0% | 1.0% | 0.0% | 0.0% | 19.0% | 4.8% |
| Shelter Cove | n/d | n/d | n/d | n/d | n/d | n/d |
| Trinity ^(d) | 0.0% | 100.0% | 0.0% | 0.0% | n/a | n/a |
| Truckee Donner | 0.0% | n/d | 0.0% | n/d | n/d | n/d |
| Ukiah | 50.3% | 67.1% | -4.7% | -23.5% | 0.0% | 0.0% |
| Victorville ^(a) | n/d | n/d | n/a | n/a | n/d | n/d |
| Load-Weighted Average | 7.4% | 11.5% | 2.5% | 2.8% | 18.4% | 1.6% |

n/d = no data, n/a = not applicable

- (a) Applicable data fields are marked “n/a” for years in which utilities did not provide retail electric service. Cerritos, Hercules, City of Industry, Moreno Valley, PWRPA, Rancho Cucamonga, and Victorville did not provide retail electric service in 2003. McAllister Ranch did not provide retail electric service in 2003 or 2006; the utility was briefly in operation in 2007, but is no longer in service.
- (b) According to documents provided by Eastside, it currently has a contract for 0.644 percent of the output from the Central Valley Project power available for commercial delivery, which on average meets 46 percent of Eastside's annual demand. Eastside did not provide any additional information about the composition of its generation supply portfolio, thus its renewable energy deliveries and incremental needs are identified as “n/d”.

- (c) Pittsburg purchases all of its generation supply from WAPA. A portion of the hydroelectric energy purchased is from CEC-eligible hydro; however the exact percentage is unknown. Thus, CEC-eligible delivery percentages are shown as "n/d".
- (d) Trinity plans to meet incremental resource needs with Energy Commission-eligible resources, but does not have a specific numerical RPS target. For this reason, it's incremental needs are identified as "n/a".

Source: KEMA

CHAPTER 4: Comparison of POU and IOU RPS Targets and Progress-to-Date

In this chapter, the progress of the state's POUs toward implementing their Renewable Portfolio Standards is compared to the progress of the state's three major IOUs, in terms of:

- Incremental renewable energy needs relative to 2003 levels.
- New renewable energy contracts signed and projects constructed since 2002.
- The increases in renewable energy deliveries from 2003 to 2006 and remaining incremental needs.

RPS Targets

Though resource eligibility rules and other policy details differ, it may nevertheless be instructive to compare the POUs' RPS targets to those of the state's three large IOUs. To make this comparison at least somewhat consistent, each utility's incremental needs for renewable energy are evaluated relative to its baseline 2003 levels. This comparison allows an assessment of the relative amount of incremental renewable energy needed by the state's POUs and IOUs, in order to meet POU-specific and statewide IOU RPS targets, respectively.

Table 10 shows the total incremental renewable energy needs and annual average needs, relative to 2003 levels, of the 30 POUs with available data (representing 97 percent of POU retail sales). In aggregate, these POUs' utility-specific RPS targets call for increased POU-qualifying renewable energy deliveries equal to 21.1 percent of their combined retail sales, relative to 2003 levels, and an average annual increase of 1.5 percent per year. (Table 1 presents similar data on a POU-specific basis).

In comparison, the state's three large IOUs will – in aggregate – have to supply an additional 6.0 percent of retail sales with Energy Commission-eligible resources, relative to 2003 levels, to meet their current 20 percent by 2010 RPS target, or 19.0 percent of retail sales to meet the state's policy goal of 33 percent by 2020. In terms of their average annual procurement needs from 2003, the state's large IOUs are required to increase their renewables deliveries by an additional 0.9 percent of retail sales each year, on average, to meet their 20 percent target by 2010, and by 1.1 percent per year, on average, to meet the 33 percent by 2020 goal. As shown in the table, these annual average incremental needs vary considerably across utilities, ranging from 0.3 percent per year (SCE) to 2.3 percent per year (SDG&E), on average, to meet the mandated 20 percent-by-2010 target, and ranging from 0.9 percent per year (SCE) to 1.7 percent per year (SDG&E), on average, to meet the 33 percent by 2020 goal.

Given the differing resource eligibility rules and enforcement approaches between the state's IOUs and POUs, these comparisons are not definitive. Nonetheless, by these metrics at least,

current POU RPS targets appear, on average, to require a significantly higher incremental increase in renewable procurement than the 20 percent RPS target set for the state's IOUs, in part because POUs started with a lower overall baseline level of renewable deliveries (8.4 percent of retail sales in 2003 for POU-qualifying resources, compared to 14.0 percent of Energy Commission-eligible resources for the large IOUs), and in part because the POUs' self-established RPS targets are higher in percentage terms than are the IOUs'. In fact, POUs' incremental needs are – in aggregate – somewhat higher than what the IOUs would need to reach to meet the state's 33 percent goal.

Table 10: Comparison of POU and IOU Incremental Renewable Energy Needs Relative to 2003 (Percent of Retail Sales)

| | 2003 RPS-Qualifying Renewables Deliveries (% of Retail Sales) | Incremental Needs Relative to 2003 RPS-Qualifying Renewables | |
|---|---|---|----------------------------|
| | | Total | Average Annual |
| Publicly Owned Utilities <i>Load-Weighted Average</i> | 8.4% | 21.1% | 1.5% |
| Investor-Owned Utilities^(a) <i>Load-Weighted Average</i> 20% by 2010 33% by 2020 | 14.0% | 6.0% 19.0% | 0.9% 1.1% |
| SDG&E <i>20% by 2010</i> <i>33% by 2020</i> | 3.7% | 16.3% 29.3% | 2.3% 1.7% |
| PG&E <i>20% by 2010</i> <i>33% by 2020</i> | 12.4% | 7.6% 20.6% | 1.1% 1.2% |
| SCE <i>20% by 2010</i> <i>33% by 2020</i> | 17.7% | 2.3% 15.3% | 0.3% 0.9% |

(a) IOUs' 2003 RPS-qualifying renewables percentages are equal to their 2003 "RPS eligible procurement" divided by their 2003 bundled retail sales, as reported in their August 2007 compliance filings to the California Public Utilities Commission. The authors adopted this approach to be consistent with the method used to calculate the POUs' RPS qualifying renewable delivery percentages, recognizing that, for compliance purposes, the state's IOUs calculate their delivery percentages in each year based on the prior year's retail sales.

Source: KEMA

Progress Toward Meeting RPS Targets

It is also instructive to compare the progress of the state's POU and IOU toward meeting their respective sets of RPS targets. As discussed previously, and shown again in Table 11, the state's POU have, since 2002, contracted with (or announced) an additional 1,994 MW of renewable energy capacity, equivalent to 13.5 percent of their total 2006 retail sales. Of this 13.5 percent, approximately 2.5 percent represents pre-existing renewable facilities, while approximately 10.9 percent comes from new facilities constructed after 2002 that have either already come on-line (4.0 percent) or are still under development (6.9 percent).

The state's three major IOUs have also contracted with a number of renewable energy facilities since the California RPS began. For the three large IOUs, contracts signed in 2002 through to the present (compared to 2003 to the present for the POU) are included, and contract extensions or modifications with qualifying facilities (as defined by the Public Utility Regulatory Policies Act of 1978, or PURPA) are excluded, unless those changes increase contract capacity or there was a change in the purchaser. The authors also include only those contracts that remain active to this day; that is, contracts that have subsequently expired or been cancelled are excluded. With these caveats, the three major IOUs had, by April 2008, contracted with an additional 6,211 MW of renewable energy capacity, equivalent to 13.6 percent of their total 2006 retail sales. Of this 13.6 percent, 3.0 percent represents pre-existing renewable facilities, while 10.6 percent comes from new facilities that are on-line (0.9 percent) or under development (9.7 percent).

Comparing the contracting activity of the state's POU and IOU as a percentage of retail sales, it is apparent that the POU have contracted with an equivalent amount of renewables since enactment of the RPS (13.5 percent of POU's total retail sales vs. 13.6 percent for the three IOUs, in aggregate). At the same time, however, a significantly larger portion of the resources procured through the POU's procurement efforts to date were on-line as of year-end 2007 (6.5 percent of total POU retail sales in 2006 vs. 3.9 percent for the state's IOUs). This difference is partially attributable to the fact that the POU have contracted with a sizable quantity of out-of-state renewable capacity that is currently on-line (much of which came on-line since 2002). Though not shown in Table 11, POU renewable energy deliveries from out-of-state facilities that are on-line represent 2.5 percent of 2006 POU retail sales.

Table 11: Comparison of POU's and IOUs' Renewable Energy Contracts and Projects Since 2002 (Nameplate MW)

| Location | On-line as of Year-End 2007 ^(a) | | Under Development | Total |
|---|--|----------------------------|-------------------|-------|
| | Pre-Existing Facilities | New Facilities (post-2002) | | |
| Publicly Owned Utilities | | | | |
| MW | 217 | 722 | 1,055 | 1,994 |
| % of 2006 POU Retail Sales | 2.5% | 4.0% | 6.9% | 13.5% |
| | | | | |
| Investor-Owned Utilities | | | | |
| MW | 614 | 530 | 5,067 | 6,211 |
| % of 2006 IOU Retail Sales ^(a) | 3.0% | 0.9% | 9.7% | 13.6% |

(a) IOUs' 2006 retail sales are based on their bundled retail sales for 2006, as reported in their August 2007 RPS compliance filings.

Source: KEMA

As shown in Table 12, from 2003 to 2006, the state's POU's collectively increased their POU-qualifying renewable energy deliveries by 2.8 percent of their overall retail sales (based on the 30 POU's for which data are available, representing 97 percent of statewide POU retail sales). This can be compared to progress made by the three large IOUs over the same period, also shown in Table 12. Collectively, the IOUs' renewable energy deliveries, as a percentage of their combined retail sales, actually declined by 0.8 percent from 2003 to 2006. Thus, looking only at the period 2003-2006, POU's have increased the percentage of their retail sales supplied by renewable energy at a significantly higher rate than the IOUs (i.e., a 2.8 percent increase for the POU's vs. a 0.8 percent decrease for the IOUs). This difference partially reflects POU's procurement from out-of-state renewables (as discussed above), as well as the fact that the IOUs experienced somewhat greater load growth from 2003 to 2006, compared to the POU's (approximately 10 percent growth for the IOUs, compared to 8 percent for the state's POU's, in aggregate).

Finally, Table 12 compares the POU's remaining incremental needs, relative to their 2006 renewables deliveries, to that of the state's IOUs. As shown, the POU's, in aggregate, have much greater remaining incremental needs than do the IOUs to meet their various RPS targets (18.4 percent of POU retail sales vs. 6.8 percent of IOU retail sales). The remaining incremental needs of POU's and IOUs are roughly comparable, however, when based on the IOUs' 33 percent by 2020 target, which would require that IOUs increase their renewable deliveries by 19.8 percent of their combined retail sales relative to 2006 levels.

Table 12: Comparison of 2003-2006 Increase in Renewables Deliveries and Remaining Incremental RPS Needs (Percentage of Retail Sales)

| | 2003-2006 Increase in RPS-Qualifying Renewables | Incremental Needs Relative to 2006 RPS-Qualifying Renewables | |
|---|---|--|----------------|
| | | Total | Average Annual |
| Publicly Owned Utilities <i>Load-Weighted Average</i> | 2.8%^(a) | 18.4% | 1.6% |
| Investor-Owned Utilities^(b) <i>Load-Weighted Average</i> | -0.8% | | |
| 20% by 2010 | | 6.8% | 1.7% |
| 33% by 2020 | | 19.8% | 1.4% |
| SDG&E | 1.7% | | |
| 20% by 2010 | | 14.7% | 3.7% |
| 33% by 2020 | | 27.7% | 2.0% |
| PG&E | -0.5% | | |
| 20% by 2010 | | 8.1% | 2.0% |
| 33% by 2020 | | 21.1% | 1.5% |
| SCE | -1.6% | | |
| 20% by 2010 | | 3.9% | 1.0% |
| 33% by 2020 | | 16.9% | 1.2% |

(a) This value represents POUs' total increase in POU-qualifying renewables. As reported previously in Table 8, POUs collectively increased their Energy Commission-qualifying deliveries by 2.5 percent of retail sales, from 2003 to 2006.

(b) The major IOUs' 2006 RPS-qualifying renewables percentages are equal to their 2006 "RPS eligible procurement" divided by their 2006 bundled retail sales, as reported in their August 2007 compliance filings to the California Public Utilities Commission. The authors adopted this approach to be consistent with the method used to calculate the POUs' RPS qualifying renewable delivery percentages, recognizing that, for compliance purposes, the state's IOUs calculate their delivery percentages in each year based on the prior year's retail sales.

Source: KEMA

CHAPTER 5: Conclusions

This report describes the efforts of the state's POU's in developing and implementing RPS programs. The data presented in the preceding pages was compiled from a diversity of sources, both formal and informal, and gaps – especially for the state's small POU's – remain. That said, the available information, although incomplete, provides an overview of the current status of California POU's RPS policies and progress to date.

The vast majority of large and medium-sized POU's, and many of the smaller POU's, have adopted formal RPS policies comparable to the original 20 percent-by-2017 RPS for the state's IOU's, ESP's, and CCAs. Further, some POU's have accelerated their target date up to 2010, as currently required for IOU's, ESP's, and CCAs, and a handful of POU's have adopted even higher targets, consistent with the state's current 33 percent-by-2020 policy goal. Altogether, the POU's' collective RPS targets are equivalent to approximately 12.3 percent of POU retail sales in 2010 and 26.0 percent of retail sales in 2020. To meet their varying RPS targets, California's POU's will have to increase their renewable energy deliveries by an amount equal to approximately 21.1 percent of their combined retail sales, relative to renewable deliveries in 2003, when the state's RPS began. This is a considerably larger incremental increase, proportionally, than the 6.0 percent of retail sales increase required by the state's IOU's to meet their 20 percent target, and it is roughly in line with the incremental increase that IOU's would have to achieve to reach a 33 percent renewable energy target.

As a whole, California's POU's have demonstrated measurable progress towards meeting their individual RPS targets, even if this is not universally the case across all of the POU's. Since the start of 2003, the state's POU's have issued a total of at least 20 solicitations for new renewables, and have added 1,994 MW of renewable energy contracts (or announcements for new utility-owned projects) to their supply, equivalent to 13.5 percent of statewide POU retail sales. Approximately half of the new contracts are currently delivering energy, and most of these contracts are associated with new renewable energy projects constructed since 2002. As a result of the new renewable energy supplies added to POU's' resource mixes, POU-qualifying renewable energy deliveries increased by 2.8 percent of statewide POU retail sales between 2003 and 2006 (2.5 percent if one only considers Energy Commission-eligible supply). In comparison, the state's IOU's' renewable energy deliveries, as a percentage of retail sales, actually declined over the same time span.

Despite their overall progress, however, California's POU's will likely need to accelerate their efforts if they are to meet their self-established renewable energy targets. Reaching their ultimate renewable energy purchase goals will require the state's POU's to increase the renewable content of their power mix by 1.6 percent of retail sales per year, on average, which exceeds the 0.9 percent average annual increase during 2003-2006.

Appendix A: POU Renewable Energy Contract and Project Detail

Table A – 1: POU Contracts and Projects Since 2002

| Utility | Project Name | Seller | Technology | Nameplate Capacity (MW) | Energy (MWh/yr) (a) | Existing (pre-2003) or New Facility? | Currently On-line? | Actual or Currently-Expected Contract Delivery Date | Location (state) | Product Type (RECs, Shaped, or Delivered) (b) | Contracting Year | Contract Term (years) |
|---------|---|---|-------------|-------------------------|---------------------|--------------------------------------|--------------------|---|------------------|---|------------------|-----------------------|
| Alameda | High Winds | PPM | Wind | 10.0 | 26,280 | new | yes | 2005 | California | n/d | 2004 | 24 |
| Alameda | Santa Cruz Landfill | Ameresco | LFG | 1.6 | 11,914 | new | yes | 2006 | California | n/d | 2004 | 20 |
| Alameda | West Contra Cost County Landfill (Richmond) | Republic Services | LFG | 2.0 | 14,892 | new | yes | n/d | California | n/d | n/d | n/d |
| Alameda | Half Moon Bay Landfill | Ameresco | LFG | 5.5 | 43,000 | new | no | 2008 | California | n/d | n/d | n/d |
| Alameda | Keller Canyon Landfill (Pittsburg) | Ameresco | LFG | 1.5 | 11,100 | new | no | 2008 | California | n/d | n/d | n/d |
| Alameda | Forward Landfill (Manteca) | Ameresco | LFG | 1.9 | 14,147 | new | no | 2008 | California | Delivered | 2007 | 20 |
| Anaheim | High Winds | PPM | Wind | 6.0 | 14,100 | new | yes | 2003 | California | Shaped | 2003 | 20 |
| Anaheim | Brea Power Partners, LP | Brea Power Partners, LP | LFG | 5.0 | 37,230 | existing | yes | 2007 | California | Delivered | 2007 | 2 |
| Anaheim | Brea Power II, LLC | Brea Power II, LLC | LFG | 25.0 | 186,150 | new | no | 2009 | California | Delivered | 2007 | 13 |
| Anaheim | Heber and Ormesa expansions | Ormat | Geothermal | 12.0 | 94,608 | new | yes | 2006 | California | Delivered | 2005 | 25 |
| Anaheim | Pleasant Valley | PPM | Wind | 30.0 | 73,268 | new | yes | 2005 | Wyoming | Delivered | 2005 | 20 |
| Anaheim | n/d | Raser Technologies | Geothermal | 11.0 | 86,724 | new | no | 2009 | Utah | Delivered | 2008 | 20 |
| Anaheim | n/d | Raser Technologies | Geothermal | 11.0 | 86,724 | new | no | 2009 | Utah | Delivered | 2008 | 20 |
| Azusa | High Winds | PPM | Wind | 6.0 | 16,064 | new | yes | 2003 | California | n/d | 2003 | n/d |
| Azusa | San Dimas Wash Hydro | San Gabriel Valley Municipal Water District | Small Hydro | 1.0 | 2,000 | existing | yes | 2006 | California | n/d | 2006 | 10 |
| Azusa | Garnet Wind Project | Dutch Energy Corporation | Wind | 6.5 | 22,000 | new | no | 2009 | California | n/d | 2007 | 20 |
| Banning | Heber and Ormesa expansions | Ormat | Geothermal | 2.0 | 15,768 | new | yes | 2006 | California | n/d | n/d | 25 |
| Burbank | Burbank LFG expansion | owned project | LFG | 0.3 | 1,862 | new | yes | 2005 | California | Delivered | n/a | n/a |
| Burbank | Chiquita Canyon Landfill | Ameresco | LFG | 1.3 | 9,680 | new | no | 2008 | California | Shaped | 2006 | 20 |
| Burbank | Pleasant Valley | PPM | Wind | 5.0 | 14,235 | new | yes | 2006 | Wyoming | Delivered | 2006 | 16 |
| Burbank | Pebble Creek | SCPPA | Wind | 10.0 | 27,000 | new | no | 2008 | Oregon | Delivered | 2007 | 18 |
| Burbank | Milford Wind Corridor Phase 1 | SCPPA | Wind | 10.0 | 30,660 | new | no | 2008 | Utah | Delivered | 2007 | 20 |
| Colton | High Winds | PPM | Wind | 3.0 | 9,198 | new | yes | 2003 | California | n/d | 2003 | n/d |

| Utility | Project Name | Seller | Technology | Nameplate Capacity (MW) | Energy (MWh/yr) (a) | Existing (pre-2003) or New Facility? | Currently On-line? | Actual or Currently-Expected Contract Delivery Date | Location (state) | Product Type (RECs, Shaped, or Delivered) (b) | Contracting Year | Contract Term (years) |
|----------|---------------------------------------|----------------------------------|-------------|-------------------------|---------------------|--------------------------------------|--------------------|---|-------------------|---|------------------|-----------------------|
| Colton | Colton Landfill | Algonquin Power Systems LFG, LLC | LFG | 1.3 | 9,680 | new | yes | 2003 | California | Delivered | n/d | n/d |
| Glendale | High Winds | PPM | Wind | 9.0 | 26,208 | new | yes | 2003 | California | Shaped | 2003 | 25 |
| Glendale | Heber and Ormesa expansions | Ormat | Geothermal | 2.1 | 17,500 | new | no | 2008 | California | Delivered | 2006 | 25 |
| Glendale | Pleasant Valley | PPM | Wind | 10.0 | 29,000 | new | yes | 2006 | Wyoming | Delivered | 2006 | 16 |
| Glendale | Pebble Creek | SCPPA | Wind | 20.0 | 54,000 | new | no | 2008 | Oregon | Delivered | 2007 | 18 |
| Glendale | Glendale College | owned project | PV | 0.3 | 920 | new | no | 2008 | California | Delivered | n/a | n/a |
| Eastside | n/d (five PV projects under contract) | n/d | PV | 3.3 | 6,300 | new | no | unknown | California | Delivered | n/d | n/d |
| Eastside | n/d (five PV projects under contract) | n/d | PV | 0.0 | 0 | new | no | unknown | California | Delivered | n/d | n/d |
| Eastside | n/d (five PV projects under contract) | n/d | PV | 0.0 | 0 | new | no | unknown | California | Delivered | n/d | n/d |
| Eastside | n/d (five PV projects under contract) | n/d | PV | 0.0 | 0 | new | no | unknown | California | Delivered | n/d | n/d |
| Eastside | n/d (five PV projects under contract) | n/d | PV | 0.0 | 0 | new | no | unknown | California | Delivered | n/d | n/d |
| Imperial | Double Weir | owned project | Small Hydro | 1.0 | 4,380 | new | yes | 2006 | California | Delivered | n/a | n/a |
| LADWP | SCS Penrose | Penrose Landfill Gas Conversion | LFG | 6.1 | 45,421 | existing | yes | 2005 | California | Delivered | n/d | 7 |
| LADWP | WM Bradley | WM Solutions | LFG | 4.9 | 36,422 | existing | yes | 2005 | California | Delivered | n/d | 10 |
| LADWP | Pine Tree Wind | owned project | Wind | 120.0 | 340,000 | new | no | 2009 | California | Delivered | n/a | n/a |
| LADWP | Headworks | owned project | Small Hydro | 5.0 | 30,000 | new | no | 2010 | California | Delivered | n/a | n/a |
| LADWP | Terminal Island Fuel Cell | owned project | Biomass | 1.0 | 8,000 | new | no | 2008 | California | Delivered | n/a | n/a |
| LADWP | TI Renewable Energy | owned project | Biomass | 4.0 | 25,000 | new | no | 2012 | California | Delivered | n/a | n/a |
| LADWP | RenewLA -1 | owned project | MSW | 25.0 | 200,000 | new | no | 2010 | California | Delivered | n/a | n/a |
| LADWP | RenewLA -2 | owned project | MSW | 25.0 | 200,000 | new | no | 2011 | California | Delivered | n/a | n/a |
| LADWP | RenewLA-3 | owned project | MSW | 25.0 | 200,000 | new | no | 2012 | California | Delivered | n/a | n/a |
| LADWP | RenewLA-4 | owned project | MSW | 25.0 | 200,000 | new | no | 2013 | California | Delivered | n/a | n/a |
| LADWP | Aqueduct PP Improvements | owned project | Small Hydro | 4.0 | 30,000 | new | no | 2012 | California | Delivered | n/a | n/a |
| LADWP | Powerex Hydro | Powerex | Small Hydro | 50.0 | 430,000 | existing | yes | 2007 | Northwest/ Canada | Delivered | n/d | 5 |
| LADWP | Pleasant Valley | PPM | Wind | 82.0 | 234,000 | new | yes | 2006 | Wyoming | Delivered | n/d | 16 |
| LADWP | Milford Wind Corridor Phase 1 | SCPPA | Wind | 185.0 | 460,000 | new | no | 2008 | Utah | Delivered | 2007 | 20 |
| LADWP | Pebble Creek | SCPPA | Wind | 68.7 | 193,000 | new | no | 2008 | Oregon | Delivered | 2007 | 18 |
| LADWP | Pine Canyon | owned project | Wind | 150.0 | 459,900 | new | no | 2014 | California | Delivered | n/a | n/a |
| LADWP | Willow Creek | Invenergy | Wind | 72.0 | 220,752 | new | no | 2008 | Oregon | Delivered | 2008 | 15 |
| Merced | High Winds | PPM | Wind | 5.0 | 15,330 | new | yes | 2003 | California | Delivered | 2003 | 25 |
| Modesto | High Winds | PPM | Wind | 25.0 | 76,650 | new | yes | 2004 | California | Shaped | 2004 | 10 |
| Modesto | Shiloh | PPM | Wind | 50.0 | 153,300 | new | yes | 2006 | California | Shaped | 2006 | 10 |

| Utility | Project Name | Seller | Technology | Nameplate Capacity (MW) | Energy (MWh/yr) (a) | Existing (pre-2003) or New Facility? | Currently On-line? | Actual or Currently-Expected Contract Delivery Date | Location (state) | Product Type (RECs, Shaped, or Delivered) (b) | Contracting Year | Contract Term (years) |
|-----------------|--|----------------------------------|-------------|-------------------------|---------------------|--------------------------------------|--------------------|---|-------------------|---|------------------|-----------------------|
| Modesto | Big Horn | PPM | Wind | 25.0 | 76,650 | new | yes | 2006 | Washington | Shaped | 2006 | 20 |
| Palo Alto | Shiloh | PPM | Wind | 25.0 | 74,800 | new | yes | 2006 | California | Shaped | 2005 | 15 |
| Palo Alto | High Winds | PPM | Wind | 20.0 | 58,000 | new | yes | 2004 | California | Shaped | 2004 | 23.5 |
| Palo Alto | Santa Cruz Landfill | Ameresco | LFG | 1.6 | 11,800 | new | yes | 2006 | California | Delivered | 2004 | 20 |
| Palo Alto | Half Moon Bay Landfill | Ameresco | LFG | 5.5 | 43,000 | new | no | 2008 | California | Delivered | 2005 | 20 |
| Palo Alto | Keller Canyon Landfill (Pittsburg) | Ameresco | LFG | 1.5 | 11,100 | new | no | 2008 | California | Delivered | 2005 | 20 |
| Pasadena | High Winds | PPM | Wind | 6.0 | 18,396 | new | yes | 2003 | California | Shaped | 2003 | 25 |
| Pasadena | BKK/West Covina and Visalia/Tulare Landfills | Minnesota Methane | LFG | 9.0 | 67,014 | existing | yes | 2007 | California | n/d | n/d | 25 |
| Pasadena | Chiquita Canyon Landfill | Ameresco | LFG | 6.7 | 49,888 | new | no | 2008 | California | n/d | n/d | n/d |
| Pasadena | Heber and Ormesa expansions | Ormat | Geothermal | 3.0 | 23,652 | new | yes | 2006 | California | n/d | n/d | 25 |
| Pasadena | Milford Wind Corridor Phase 1 | SCPPA | Wind | 5.0 | 15,330 | new | no | 2008 | Utah | Delivered | 2007 | 20 |
| Plumas-Sierra | Rye Patch (re-power) | Presco Energy | Geothermal | 2.0 | 15,768 | new | no | 2008 | California | Delivered | 2007 | 10 |
| Plumas-Sierra | Black Mountain | owned project | Wind | 22.5 | 65,043 | new | no | 2011 | California | Delivered | n/a | n/a |
| Port of Oakland | Forward Landfill (Manteca) | Ameresco | LFG | 1.9 | 14,147 | new | no | 2008 | California | n/d | n/d | 20 |
| PWRPA | Sonoma Co. Landfill, Phases I & II | Sonoma County | LFG | 6.4 | 47,654 | existing | yes | 2006 | California | Delivered | 2005 | 10 |
| Redding | Roseburg | RLC Industries | Biomass | 10.0 | 74,460 | new | no | 2008 | California | Delivered | 2006 | 15 |
| Redding | Big Horn | PPM | Wind | 70.0 | 214,620 | new | yes | 2006 | Washington | Shaped | 2006 | 20 |
| Riverside | Salton Sea V | CalEnergy | Geothermal | 20.0 | 157,680 | existing | yes | 2003 | California | Delivered | 2003 | 17 |
| Riverside | Salton Sea V | CalEnergy | Geothermal | 26.0 | 204,984 | existing | yes | 2009 | California | Delivered | 2005 | 11 |
| Riverside | Badlands Landfill | Riverside County | LFG | 1.2 | 8,935 | existing | yes | 2003 | California | Delivered | 2003 | 15 |
| Riverside | Milliken Landfill (Ontario) | Algonquin Power Systems LFG, LLC | LFG | 2.3 | 17,126 | new | yes | 2003 | California | Delivered | 2003 | 4 |
| Riverside | Mid Valley Landfill (Rialto) | Algonquin Power Systems LFG, LLC | LFG | 2.3 | 17,126 | new | yes | 2003 | California | Delivered | 2003 | 4 |
| Riverside | Wintec/Buckwind | Wintec Pacific-Solar, LLC | Wind | 1.3 | 3,986 | existing | yes | 2003 | California | Delivered | 2003 | 18 |
| Riverside | Facility II Wind Turbine project | Wintec Pacific-Solar, LLC | Wind | 6.7 | 20,542 | new | no | n/d | California | Delivered | 2006 | 15 |
| Riverside | n/a | BPA | Unspecified | as needed | as needed | existing | yes | 2003 | Pacific Northwest | RECs | 2003 | 5 |
| Riverside | Janet Goeske Senior Center | owned project | PV | 0.7 | 2,044 | new | yes | 2006 | California | Delivered | n/a | n/a |
| Riverside | Riverside City Hall | owned project | PV | 0.2 | 502 | new | yes | 2006 | California | Delivered | n/a | n/a |
| Riverside | Riverside Pools | owned project | PV | 0.4 | 1,168 | new | yes | 2005 | California | Delivered | n/a | n/a |
| Riverside | Shoshone | Shoshone Renaissance LLC | Geothermal | 64.0 | 504,576 | new | no | 2011 | Utah | Delivered | 2,008 | 30 |
| Roseville | Lincoln | Energy 2001/NCPA | LFG | 1.8 | 13,403 | new | yes | 2004 | California | Delivered | n/d | n/d |

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|----------------------|---|----------------------------|-------------|-------------------------|---------------------|--------------------------------------|--------------------|---|-------------------|---|------------------|-----------------------|
| Shasta Lake | n/d | Sierra Pacific Industries | Biomass | 0.8 | 3,504 | new | no | 2008 | California | Delivered | n/d | n/d |
| Silicon Valley Power | Altamont - ZOND | SeaWest | Wind | 20.0 | 61,320 | existing | yes | 2006 | California | Delivered | 2006 | 5 |
| Silicon Valley Power | Big Horn | PPM | Wind | 105.0 | 321,930 | new | yes | 2006 | Washington | Shaped | 2006 | 20 |
| Silicon Valley Power | G2 | G2 Energy | LFG | 3.2 | 24,000 | new | no | 2008 | California | Delivered | 2007 | 15 |
| SMUD | Solano Wind Project, Phase I | owned project | Wind | 10.6 | 32,377 | new | yes | 2003 | California | Delivered | n/a | n/a |
| SMUD | Solano Wind Project, Phase II | owned project | Wind | 4.6 | 14,165 | new | yes | 2004 | California | Delivered | n/a | n/a |
| SMUD | Solano IIA | owned project | Wind | 24.0 | 73,584 | new | yes | 2006 | California | Delivered | n/a | n/a |
| SMUD | Solano Wind Project | owned project | Wind | 63.0 | 193,158 | new | yes | 2007 | California | Delivered | n/a | n/a |
| SMUD | High Winds | PPM | Wind | 75.0 | 350,457 | new | yes | 2003 | California | n/d | 2003 | n/d |
| SMUD | Keifer Landfill, Phase II | Sacramento County | LFG | 5.7 | 42,442 | new | yes | 2007 | California | Delivered | 2007 | n/d |
| SMUD | Geysers | Calpine | Geothermal | 55.6 | 438,000 | existing | yes | 2004 | California | n/d | n/d | n/d |
| SMUD | n/d | Avista | LFG | 2.6 | 19,440 | existing | yes | n/d | Pacific Northwest | n/d | n/d | n/d |
| SMUD | n/d | Avista | Small Hydro | 4.6 | 20,160 | existing | yes | n/d | Pacific Northwest | n/d | n/d | n/d |
| SMUD | n/d | Sierra Pacific Industries | Biomass | 15.0 | 111,690 | new | yes | 2007 | Washington | Delivered | 2007 | 10 |
| SMUD | n/d (biomass digester) | n/d | Biomass | 0.4 | 3,350 | new | no | 2008 | California | Delivered | n/d | n/d |
| Truckee Donner | Rye Patch (re-power) | n/d | Geothermal | 4.0 | 31,536 | new | no | 2008 | California | n/d | n/d | 10 |
| Truckee Donner | Stampede | n/d | Small Hydro | 3.4 | 14,892 | existing | yes | n/d | California | n/d | n/d | n/d |
| Truckee Donner | Geysers | NCPA/Western Geopower Inc. | Geothermal | 0.4 | 2,996 | new | no | 2010 | California | n/d | 2008 | 20 |
| Turlock | Turlock waste water treatment (fuel cell) | owned project | Biomass | 1.2 | 4,212 | new | no | 2008 | California | Delivered | n/a | n/a |
| Turlock | Windy Point | Cascade Wind Holdings LLC | Wind | 100.0 | 306,600 | new | no | 2009 | Washington | n/d | 2008 | 10 |
| TOTAL | | | | 1,994 | 8,457,574 | | | | | | | |

n/d = no data, n/a = not applicable

(a) If not provided directly, average annual energy (MWh/yr) was calculated from nameplate capacity, based on assumed capacity factors (35 percent for wind, 85 percent for LFG and biomass, 90 percent for geothermal, and 50 percent for small hydro)

- (b) Contracts are designated as one of three possible products types: tradable renewable energy credits (RECs), energy delivered as generated (Delivered), or energy delivered according to a specified temporal schedule (Shaped). For the latter two product types, RECs are assumed to be bundled with energy.

Source: KEMA